

Best Available Copy

Reply to Office Action dated  
December 12, 2004

2

Serial No. 09/769,761

**Amendment to the Claims:**

The listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended): A process of making a bleached mechanical wood pulp comprising:

providing an aqueous slurry of mechanical wood pulp;

providing an aqueous bleaching mixture consisting essentially of water and hydrogen peroxide;

providing an aqueous magnesium hydroxide slurry consisting essentially of water and magnesium hydroxide;

combining together the aqueous slurry of mechanical wood pulp, the aqueous slurry consisting essentially of magnesium hydroxide and the aqueous bleaching mixture, to form a bleaching pulp mixture, the bleaching pulp mixture having a pH of from about 5.0 to 8.5, the initial ratio of magnesium hydroxide to hydrogen peroxide in said bleaching mixture being about 25 parts to about 75 parts of magnesium hydroxide to about 100 parts of hydrogen peroxide, and the magnesium hydroxide having an initial concentration in the bleaching pulp mixture of at least about 0.5 wt. %, based on pulp dry mass; and

bleaching the bleaching pulp mixture for a time sufficient to produce bleached mechanical wood pulp, the bleached mechanical wood pulp having an ISO brightness of up to about 75% more than about 65 %, and the magnesium hydroxide having a BET surface area of about 7 to about 15 m<sup>2</sup>/g.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

Best Available Copy

Reply to Office Action dated  
December 12, 2004

3

Serial No. 09/769,761

5. (Original) A process according to claim 1, wherein the bleaching pulp mixture is maintained for a reaction time of up to about 6 hours.

6. (Original) A process according to claim 1, wherein the bleaching pulp mixture is heated so as to be maintained at a temperature range of about 120 °F to about 210 °F.

7. (Original) A process according to claim 1, wherein the hydrogen peroxide has an initial concentration in the bleaching pulp mixture of up to about 6 wt. %, based on pulp dry mass.

8. (Original) A process according to claim 7, wherein the hydrogen peroxide has an initial concentration of about 1 to about 6 wt. % based on pulp dry mass.

9. (Previously presented): A process according to claim 1, wherein the magnesium hydroxide has an initial concentration in the bleaching pulp mixture of from about 0.5 wt. % up to about 5 wt. %, based on pulp dry mass.

10. (Previously presented): A process according to claim 9, wherein the magnesium hydroxide has an initial concentration of from about 0.5 up to about 2 wt. % based on pulp dry mass in the bleaching pulp mixture.

11. (Previously presented): A process according to claim 1, wherein the magnesium hydroxide contains less than about 250 ppm Mn, less than about 0.15 wt. % Fe, and less than about 250 ppm Cu, based on the equivalent mass of Mg(OH)<sub>2</sub>.

12. (Previously presented): A process according to claim 1, wherein the bleaching pulp mixture has a final pH of about 6.5 to about 8.0.

Best Available Copy

Reply to Office Action dated  
December 12, 2004

4

Serial No. 09/769,761

13. (Cancelled)
14. (Cancelled)
15. (Cancelled).
16. (Cancelled)
17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Cancelled)
27. (Cancelled)
28. (Cancelled)
29. (Cancelled)
30. (Cancelled)
31. (Cancelled).

32. (Currently Amended): A process of making a bleached mechanical wood pulp comprising:

- providing an aqueous slurry of mechanical wood pulp;
- providing an aqueous bleaching mixture consisting essentially of water, and hydrogen peroxide;
- providing an aqueous magnesium hydroxide slurry consisting essentially of water and magnesium hydroxide;
- combining the aqueous slurry of mechanical wood pulp, the aqueous bleaching mixture,

Best Available Copy

Reply to Office Action dated  
December 12, 2004

5

Serial No. 09/769,761

and the aqueous magnesium hydroxide-slurry, to form a bleaching pulp mixture, the bleaching pulp mixture having a pH of from about 5.0 to 8.5, the initial ratio of magnesium hydroxide to hydrogen peroxide in said bleaching mixture being about 25 parts to about 75 parts of magnesium hydroxide per about 100 parts of hydrogen peroxide, and the magnesium hydroxide having an initial concentration in the bleaching pulp mixture of at least about 0.5 wt. %, based on pulp dry mass;

bleaching the bleaching pulp mixture for a time sufficient to produce bleached mechanical wood pulp, the bleached mechanical wood pulp having an ISO brightness of ~~up to~~ about 75% more than about 65 %, and the magnesium hydroxide having a BET surface area of about 7 to about 15 m<sup>2</sup>/g;

separating the bleached mechanical wood pulp from a filtrate comprising water and residual hydrogen peroxide; and

recycling at least a portion of said filtrate as at least a portion of said bleaching pulp mixture.

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Original) A process according to claim 32, wherein the bleaching pulp mixture is maintained for a reaction time of up to about 6 hours.

37. (Original) A process according to claim 32, wherein the bleaching pulp mixture is heated so as to be maintained at a temperature range of about 120 °F to about 210 °F.

38. (Original) A process according to claim 32, wherein the hydrogen peroxide has an initial concentration in the bleaching pulp mixture of up to about 6 wt. %, based on pulp dry mass.

Best Available Copy

Reply to Office Action dated  
December 12, 2004

6

Serial No. 09/769,761

39. (Original) A process according to claim 38, wherein the hydrogen peroxide has an initial concentration of about 1 to about 6 wt. % based on pulp dry mass.

40. (Previously presented): A process according to claim 32, wherein the magnesium hydroxide has an initial concentration in the bleaching pulp mixture of from about 0.5 wt. % up to about 5 wt. %, based on pulp dry mass.

41. (Previously presented): A process according to claim 40, wherein the magnesium hydroxide has an initial concentration of from about 0.5 to about 2 wt. % based on pulp dry mass.

42. (Previously presented): A process according to claim 32, wherein the magnesium hydroxide contains less than about 250 ppm Mn, less than about 0.15 wt. % Fe, and less than about 250 ppm Cu, based on the equivalent mass of Mg(OH)<sub>2</sub>.

43. (Previously presented): A process according to claim 32, wherein the bleaching pulp mixture has a final pH of about 6.5 to about 8.0.

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Original) A process according to claim 32, wherein fresh hydrogen peroxide is added to said filtrate prior to recycle as bleaching mixture.

48. (Original) A process according to claim 32, wherein at least a portion of said filtrate and said bleaching mixture are combined prior to combining with said wood pulp.

Best Available Copy

Reply to Office Action dated  
December 12, 2004

7

Serial No. 09/769,761

49. (Previously presented): A process according to claim 1, wherein the mechanical wood pulp is selected from a group consisting of stone groundwood (SGW), pressurized stone groundwood (PSGW), refiner mechanical (RMP) and thermomechanical pulp (TMP).

50. (Cancelled)

51. (Previously presented): A process according to claim 32, wherein the mechanical wood pulp is selected from a group consisting of stone groundwood (SGW), pressurized stone groundwood (PSGW), refiner mechanical (RMP) and thermomechanical pulp (TMP).

52. (Previously presented): A process according to claim 1, wherein bleaching pulp mixture is formed in the absence of sodium silicate.

53. (Cancelled)

54. (Previously presented): A process according to claim 32, wherein bleaching pulp mixture is formed in the absence of sodium silicate.

55. (Previously presented): A process according to claim 1, wherein bleaching pulp mixture is formed in the absence of sodium hydroxide.

56. (Cancelled)

57. (Previously presented): A process according to claim 32, wherein bleaching pulp mixture is formed in the absence of sodium hydroxide.

Best Available Copy

Reply to Office Action dated  
December 12, 2004

8

Serial No. 09769761

58. (Cancelled)
59. (Cancelled)
60. (Cancelled)